UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,597	09/19/2003	Tucker D. Maurer	14960-0012	6362

25267 7590 07/13/2006

BOSE MCKINNEY & EVANS LLP
135 N PENNSYLVANIA ST
SUITE 2700
INDIANAPOLIS, IN 46204

EXAMINER	
ZHENG, LOIS L	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/665,597	MAURER, TUCKER D.	
	Examiner	Art Unit	
	Lois Zheng	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-43 are currently under examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8, 19 and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. US 4,012,351(Hall) in view of Lum US 2,516,008(Lum), further in view of Brands et al. US 5,112,414(Brands), and further in view of Rodabaugh et al. US 5,702,534(Rodabaugh).

Hall teaches a process to form a coating on metal surfaces, such as iron and steel (abstract, col. 12 lines 15-20), using a coating solution comprising phosphoric acid, fluoride, hydrogen peroxide and ferric ions(i.e. iron)(col. 7 lines 9-13, col. 11 lines 4-10, col. 12 lines 5-15). The pH of the coating composition is about 1.6-3.0(col. 12 lines 16-17). Hall further teaches that the metal substract is cleaned prior to applying the coating composition(col. 11 lines 31-32).

Regarding claim 1, the coating of metal surfaces as taught by Hall reads on the claimed passivating step. Even though Hall does not explicitly teach that the metal surface is stainless steel as claimed, one of ordinary skill in the art would have found

the application of Hall's coating to stainless steel surfaces with expected success since iron and steel surfaces as taught by Hall encompasses stainless steel.

However, Hall does not explicitly teach that the claimed cleaning of pickled stainless steel with an alkaline composition and the claimed activation of cleaned steel with an activator composition.

Lum teaches a process to apply an activation composition to activate iron surfaces prior to the application of a phosphate coating(i.e. passivation)(col. 1-4 and 46-55). Lum further teaches cleaning of the iron surface with an alkaline solution prior to applying the activation composition(col. 1 lines 35-45). Even though Lum further teaches a surface treatment composition comprising an alkaline cleaning solution, an activating composition and a stabilizer comprising carboxylic acids such as citric acid, tartaric acid, oxalic acid in the amount of at least 2%(col. 3 line 67 – col. 4 line 9), one of ordinary skill in the art would have found it obvious to have applied the alkaline cleaning and the surface activating separately with expected success since Lum inherently teaches that application of an alkaline cleaning solution with an activating solution separately or together are functionally equivalent procedures and have the same effect on the metal surface.

In addition, Brands teaches that it is well known in the art that carboxylic acids such as oxalic, tartaric or citric acids are good activating agents and can be used to pre-treat steel surfaces(col. 3 lines 10-14) after the steel surface is cleaned (col. 1 line 67-col. 2 line 4). Therefore, one of ordinary skill in the art would have found it obvious that the carboxylic acids in the combined solution of Lum are good activating agents as well

in light of the teachings of Brands. One of ordinary skill in the art would have also found it obvious to have used the combined solution of Lum as the activating solution with expected success.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the step of activating metal surfaces prior to passivation and the cleaning of metal surfaces with an alkaline solution prior to activation as taught by Lum in view of Brands into the coating process of Hall in order to provide an metal surface that is clean and in an highly active state in order to produce a high quality phosphate coating as taught by Lum(col. 5 lines 28-32).

Therefore, Hall in view of Lum and Brands teach the claimed cleaning of stainless steel with an alkaline solution and the claimed activation of cleaned steel with an activator composition. In addition, since the activation composition of Hall in view of Lum and Brands contains carboxylic acids as claimed, the examiner concludes that the activator of Hall in view of Lum in view of Brands have a significantly higher binding affinity for iron than for chromium as claimed.

Rodabaugh teaches a hydrogen peroxide pickling method for stainless steel (abstract) without using nitric acid.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the hydrogen peroxide pickling technique as taught by Rodabaugh into the coating process of Hall in view of Lum and Brands in order to remove scales prior to coating without an environmental concerns as taught by Rodabaugh(col. 1 lines 6-32).

Therefore, Hall in view of Lum, Brands and Rodabaugh teach the pickled stainless steel surface as claimed.

Regarding claim 2-8, Hall in view of Lum and Rodabaugh disclose the claimed carboxylic acid such as oxalic acid, tartaric acid and citric acid in the activator. In addition, the carboxylic acid amount of at least 2% and the activator pH of between 10 and 12.5(Lum, col. 3 lines 13-17) as taught by Hall in view of Lum, Brands and Rodabaugh overlap the claimed carboxlic acid amounts and pH values as recited in instant claims 5-8. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed activator amounts and pH values would have been obvious to one of ordinary skill in the art since Hall in view of Lum, Brands and Rodabaugh teach the same utilities in their disclosed carboxylic acid amount and pH ranges.

Regarding claim 19, the passivation composition as taught by Hall in view of Lum and Rodabaugh contains the same ingredients as claimed. The pH of the passivation composition as taught by Hall in view of Lum and Rodabaugh encompasses the claimed pH of about 2. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed passivation solution pH value would have been obvious to one of ordinary skill in the art since Hall in view of Lum and Rodabaugh teach the same utilities in their disclosed passivating solution pH range.

Regarding claim 38, since Hall in view of Lum, Brands and Rodabaugh teach the claim activator as claimed, the examiner concludes that the activator of Hall in view of

Lum, Brands and Rodabaugh inherently has high complex formation constants for iron than for chromium as claimed.

Regarding claims 39-42, the instant claims are partially rejected for the same reason as stated in the rejection of instant claim 1 above. In addition, since Hall does not teach nitric acid as a must have ingredient in the passivating solution, the examiner concludes that the passivating solution as taught by Hall in view of Lum, Brands and Rodabaugh is a non-nitric acid based passivating composition as claimed.

4. Claims 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Lum, Brands and Rodabaugh, and further in view of Rausch US 2,819,193(Raush).

The teachings of Hall in view of Lum, Brands and Rodabaugh are discussed in paragraph 3 above. However, Hall in view of Lum, Brands and Rodabaugh do not explicitly teach the claimed inorganic activator as recited in claims 9-18.

Raush teaches applying an coating composition to iron, steel, stainless steel surfaces, wherein the coating composition comprises phosphoric acid, oxalic acid and fluoride as an activator(col. 2 lines 1-19).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the coating composition of Raush into activator of Hall in view of Lum, Brands and Rodabaugh since Raush teaches that the coating composition contains an activator and also forms a suitable base coat for additional coating layers as taught by Raush(col. 1 lines 37-43 and col. 2 lines 13-19)

Regarding claims 9-18, Hall in view of Lum, Brands, Rodabaugh and Raush teach the claimed fluoride, phosphoric acid, and oxalic acid containing activator as claimed. In addition, Raush further teaches that the activator is in the amount of 0.1-20g/l(col. 2 line 6) and the pH of the coating composition is in the range of 1-3. Therefore, the activator amount and the pH value as taught by Hall in view of Lum, Brands, Rodabaugh and Raush overlaps the claimed activator amounts and pH values as recited in instant claims 13-16. A prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed activator amounts and the claimed pH values would have been obvious to one of ordinary skill in the art since Hall in view of Lum, Brands, Rodabaugh and Raush teach the same utilities in their disclosed activator amount and pH range.

5. Claims 20-27, 37 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Lum, Brands and Rodabaugh, and further in view of Komiyama et al. US 6,447,620 B1(Komiyama).

The teachings of Hall in view of Lum, Brands and Rodabaugh are discussed in paragraph 3 above. However, Hall in view of Lum, Brands and Rodabaugh do not explicitly teach the claimed addition of molybdenum in the passivation solution.

Komiyama teaches a coating solution for treating metal surfaces such as stainless steel(abstract, col. 1 line 10). Komiyama further teaches the addition of molybdenum disulfide into the coating solution as lubricating additives(col. 14 lines 23-29).

Regarding claims 20 and 43, it would have been obvious to one of ordinary skill in the art to have incorporated the lubricating additive, such as molybdenum disulfide, as taught by Komiyama into the passivating solution of Hall in view of Lum, Brands and Rodabaugh in order to improve the lubricity, workability and barrier effect as taught by Komiyama (col. 14 lines 23-24). Therefore, the passivating solution of Hall in view of Lum, Brands, Rodabaugh and Komiyama contain molybdenum as claimed.

Regarding claims 21-27 and 37, the instant claims are rejected for the same reasons as stated in the rejections of instant claims 2-8 and 19 in paragraph 3 above.

6. Claims 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Lum, Brands, Rodabaugh and Komiyama and further in view of Rausch.

The teachings of Hall in view of Lum, Brands, Rodabaugh and Komiyama are discussed in paragraph 3 above. However, Hall in view of Lum, Brands, Rodabaugh and Komiyama do not explicitly teach the claimed inorganic activator as recited in claims 28-36.

The teachings of Raush are discussed in paragraph 4 above. Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the coating composition of Raush into activator of Hall in view of Lum, Brands, Rodabaugh and Komiyama for the same reasons as stated in paragraph 4 above.

Regarding claims 28-36, the instant claims are rejected for the same reasons as stated in the rejections of instant claims 9 and 11-18 in paragraph 4 above.

Response to Arguments

7. Applicant's arguments filed 25 April 2006, regarding the Hall reference have been fully considered but they are not persuasive.

Applicant argues that Hall does not "contemplate passivation to increase the chromium/iron ratio for better corrosion resistance". The examiner does not find applicant's argument persuasive since the coating composition as taught by Hall contains the same components as the instantly claimed passivating composition. One of ordinary skill in the art would have found it obvious that the coating composition would have the same effect when applied to stainless steel. Therefore, the examiner maintains the position that the coating of metal surfaces as taught by Hall reads on the claimed passivation step.

8. Applicant's arguments regarding the Lum reference, filed 25 April 2006, with respect to the rejection(s) of claim(s) 1-43 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Brandes(see paragraphs 3-6 above).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brown et al. US 5,868,873 (Brown) teaches that it is well known to use an alkaline cleaning agent to pre-treat the metals surface prior to zinc phosphate coating. Brown also teaches that rinsing cleaned substrate with a solution containing titanium

phosphate and oxalic acid after cleaning to alleviate the problems of large and coarse crystal associated with applying phosphate coating after strong alkaline cleaning.

Schapira et al. US 5,628,838 (Schapira) teaches an activation comcentrate comprises carboxylic acid. Shapira also teaches one or more alkaline cleaning steps prior to the activation step.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

LLZ